REMARKS

Present Status of the Application

The Office action rejected Claims 1, 5~9 under 35 U.S.C 103 (a) as being unpatentable over *Hishikawa*(US 6,808,161 B1).

The Office action rejected Claims 11~15 are rejected under 35 U.S.C 103(a) as being unpatentable over *Hishikawa* in view of *Schneider* (US 5836967).

In response thereto, Applicants have amended claims 1, 7, 11, 13 and 15 to more clearly define the claimed invention and respectfully traverse all the rejections on the ground set forth in detail below. Applicants respectfully submit that all the pending claims 1, 6~9, 11~15 are placed in proper condition for allowance, and reconsideration of all the pending claims is respectfully requested.

Response to Claim Rejections under 35 U.S.C. 103(a)

I. Discussion on "Claims 1, 5~9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hishikawa(US 6808161 B1)"

In the office action after RCE, the office action also agree that " Hishikawa does not disclose the semispherical portion as outwardly convex". However, the office action considers that " It would have been obvious to one of ordinary skill in the art at the time of the invention *to use an outwardly convex semispherical portion as it is a* ***design feature*** *that conforms to the type of the device that interacts with said portion and* ***does not otherwise effect functionality*** *of the*

device."

Based on the above rejection opinion, Applicant has following comments,

In current claim1, mentioned

"…. *the sealing valve* is made of an elastic material ***to be semispherical, and the sealing valve has a semispherical space inside thereof, the sealing valve being directed outward convexly*** and having a valve hole at a center thereof…**"(emphasized)**"

(1) The technical features between the present application and Hishikawa(US 6808161 B1) are totally different.

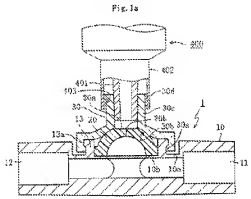
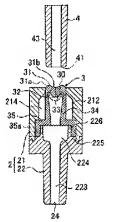
In p.13 lines 20~21 of specification of the present application (please also see Fig. 1a), recited," The sealing valve 20 is formed of an elastic material to **be semispherical**…."

However, in column 8, lines 27~46 of Hishikawa (Please see Fig. 8A), valve portion 30 with a slit 33 is disclosed, and clearly the shape of the valve portion 30 is **NOT** semispherical.

That means, Hishikawa fails to disclose or teach " sealing valve to be semispherical " recited in Claim1 of the present application.

(2) In the present application, the semispherical sealing valve 20 itself defines **a semispherical space** in the semispherical sealing valve 20, and the semispherical sealing valve 20 itself can be pressed and deformed pressing by means of a tip end of a male connection port and a valve hole 20b is then opened, and can be restored when removing the tip end of a male connection port **with uniform force**. This is caused by the **specific shape (semispherical)** of the sealing valve 20.

However, in Hishikawa, valve 3 includes valve portion 30 and base 34 **with irregular shape**. When the valve 3 is pressed and deformed, the base 34 is bended and the slit 33 is opened **with unbalance force**. Clearly, skilled person at art can know that the compressed base 34 is unstable when being pressed due to the irregular shape, and the slit 33 may be opened improperly due to the unbalance pressing force on the base 34.

Claim1 of this application	*Hishikawa* (US 6808161 B1)
Fig. 1a 	FIG. 8A 

To sum up, Applicant considers that the technical feature "the sealing valve is made of an elastic material to be semispherical, and the sealing valve has a semispherical space inside thereof" recited in current claim1 is not disclosed or taught by Hishikawa.

(3) The above technical feature has unexpected technical effects as followed,

(3a) Referring Figs. 1a and 1b of the present application, the leading end of the orifice portion 401 of the syringe 400 directly presses the peripheral portion of the valve hole 20b so as to

deform the semispherical sealing valve 20 toward the opposite direction (as shown in Fig. 1b). Although the extremely short pressing stroke of the syringe 400 is used, the valve hole 20b still can be opened easily and certainly.

(3b) The semispherical sealing valve 20 is deformed to expand outward when receiving an internal pressure of blood or drug solution. In other words, the semispherical portion of the sealing valve 20 has excellent elastic restoring characteristic, and the valve hole 20b of the sealing valve 20 is pressed to be closed certainly. Therefore, the leak of blood or drug solution can be avoided.

As above discussions (1)~(3), Hishikawa fails to disclose or teach the above technical feature, and the above technical feature has unexpected technical effects, the amended claim1 is non-obvious and is patentable over Hishikawa (US 6808161 B1).

"Semispherical sealing valve" is emphasized as the technical feature (as shown in Fig. 1a and Fig. 1b of the present application), so claim5 has "a cylindrical shape with a ceiling portion" is canceled. Independent claim 7 is amended as same as the amended claim1. To sum up, independent claims 1 and 7 are patentable over Hishikawa.

II. Discussion of opinion (2): Claims 11~15 are rejected under 35 U.S.C 103(a) as being unpatentable over Hishikawa in view of Schneider (US 5836967)

In current Independent Claims11, 13 and 15 respectively recites," A mixed injection tube ", "A connection tool for connecting to an infusion circuit" and "A connection system for an infusion circuit", in which the following technical feature is mentioned,

"the sealing valve is made of an elastic material ***to be semispherical, and the sealing valve has a semispherical space inside thereof, the sealing valve being directed outward convexly*** and having a valve hole at a center thereof, and the valve hole is opened by pressing and deforming the sealing valve by means of a tip end of a male connection port, without allowing the tip end of the male connection port to run through the valve hole" **(emphasized)**

As above discussions (1)~(3), Hishikawa fails to disclose or teach the above technical feature. Schneider discloses many connection ports connecting to an infusion tube, but Schneider fail to disclose or teach the above technical feature. Persons skilled at art can not obviously modify Hishikawa with multiple connection ports along an infusion tube as taught by Schneider. To sum up, independent claims 11, 13 and 15 are patentable over Hishikawa in view of Schneider.

As discussion on part (I) and (II), independent claims 1, 7, 11, 13 and 15 are allowable. Since independent claims 1, 7, 11, 13 and 15 are allowable, claims dependent thereon should also be allowed as a matter of law for they contain all of the limitations of their respective independent claim. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

CONCLUSION

For at least the foregoing reasons, it is believed that all the pending claims 1, 6~9, 11~15 of the present application patently define over the prior art and are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

Respectfully submitted,
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